

| General description:

The SDK 80 power supply system is intended for uninterruptible supply of 48Vdc loads by direct current in direct full-float operating mode. The construction of the system using cooperation of rectifiers type PDK 48/20-1000W and batteries under control of advanced PI1 controller.

| Application:

- + telecommunication and teletransmission;
- + IT systems;
- + industrial automation systems.

| Features:

- + compact design (3U/19") adapted for assembling in cabinets (racks) 19", 21" (reduction brackets);
- + optional side panels to create enclosure (possibility of wall or ground mounting);
- + modern, constant power rectifiers;
- + easy installation of rectifier (replacement or extension) during normal operation status (hot-swap);
- + continuous control of system's operation and fast reporting of alarm states by means of controller;
- + easy and full safe operation;
- + high efficiency;
- + immunity to short-circuits and overloads of output circuits;
- + flexible cable terminals configuration: system may be prepared as Front Terminal (all terminals and connectors are located on the front panel of the system) or in version with terminals located on the rear panel of the system;
- + immunity to electromagnetic interferences;
- + wide range of optional equipment.

| Rectifiers:

Constant power rectifier PDK 48/20-1000W with nominal output power 1000W is equipped with microprocessor card controlling its work's parameters. The digital communication between rectifiers and control unit, gives operator the possibility of remote supervision on individual rectifiers of the system.

The PDK rectifier design is based on high-frequency energy conversion technology with DSP (Digital Signal Processor) function. This feature means less number of parts, optimized price & performance, better power distribution between rectifiers. In addition, the rectifier is equipped with a PFC provides sinusoidal current consumption from the mains.

PDK 48/20-1000W rectifier can also be supplied from DC source – 220Vdc.

| Power supply of the system:

The SDK 80 system is supplied from three-phase AC supply line. Failure of one or two phases of mains supply does not cause the whole power supply system to be switched off (individual rectifier units are supplied from different phases). Also it is possible to supply system with single-phase line.

| Design of the system:

In standard version the enclosure of the system is intended to installing in standard 19-inch cabinets (racks).

The standard version the power supply system consists:

- + microprocessor control unit PI1 with OLED display, control buttons and USB port for PC connection;
- + available space for installing up to 4pcs. of PDK 48/20-1000W rectifiers;
- + battery protections with status monitoring – MCB – up to 2 pcs.;
- + load protections with status monitoring – MCB – up to 14 pcs. With two battery MCBs;
- + temperature compensation of float voltage with temperature sensor;
- + AC mains phase failure detection (KZF);
- + 3 alarm outputs in the form of potential-free relay contacts.

Optionally the power supply system can be equipped with additional modules and elements:

- + battery protections with status monitoring;
- + summary battery current measurement;
- + ambient temperature measurement;
- + LVD - automatic disconnection of the batteries from loads (protection against deep discharge);
- + management of groups of loads (ZGO);
- + side panels intended for creating floor mounting and wall mounting versions of the system.

| Safety and Environmental aspects:

During the system design process following aspects related to environmental protection have been taken into consideration:

- + compliance with the European Union's directive RoHS - restrict the use of certain hazardous substances,
- + compliance with the European Union's directive WEE regarding waste of electrical and electronic equipment,
- + compliance with the European Union's directives LVD and EMC - electrical safety and electromagnetic compatibility,
- + reduce of used electrical energy as the result of high efficiency,
- + reduce the amounts of used materials and wastes as a consequence of system dimensions minimization and high reliability.



Basic parameters of the system:

Input parameters:

Nominal voltage	Vac	3x230/400 Vac
	/	or
	Vdc	220 Vdc
Range of phase input voltage changes	Vac	85 ÷ 300
Frequency	Hz	45 ÷ 65
Configuration of AC mains	-	3xL+ N+ PE or L+ N+ PE
Max. phase current	Aac	12 (three-phase), 24 (single-phase)
Power factor λ		~1

Output parameters:

Range of voltage	Vdc	48 ÷ 58
Characteristic	-	IPU
Stabilization of output voltage	%	±1
Maximum output current	A _{dc}	80
Maximum output power	W	4000
Output voltage ripples (psophometric value)	mV	< 2

General data:

Range of ambient temperature	°C	-35...+40 (65 limited power)
Cooling	-	Forced
Rectifier module efficiency	%	92 (peak)
Ingress protection		IP20
Electromagnetic compatibility	-	in accordance with PN-EN 300-386
Safety requirements	-	in accordance with PN-EN 60950
Dimensions of the power supply system (HxWxD)	mm	133(3U) x 483(19") x 300
System weight without rectifier units	kg	~11
Dimensions of the rectifier unit (HxWxD)	mm	44 x 88 x 241
Weight of the rectifier	kg	1,25

| Basic functions of the control unit with standard module (MP):

- + control & display values of:
 - output current,
 - output voltage,
 - battery current (option),
 - battery temperature,
 - ambient temperature (option);
- + temperature compensation of float voltage;
- + current limitation of battery charging;
- + enforcing automatic battery charging mode;
- + signaling of load and battery protections blow-out;
- + battery asymmetry control;
- + creating register of events in control unit's memory;
- + optional control of cut-out battery from the loads – programming cut-out voltage
- + optional manage of contractor for cut-out not-critical group of loads – programming cut-out voltage;
- + visualization of parameters and actual state of the system on OLED screen;
- + sending out an alarm by the potential-free contact;
- + automatic reporting of alarm states to WinCN supervisory system (option).

| Additional functions of the control unit with MOB module:

In place the MP basic module, the extended MOB module can be installed. It extends the possibilities of the Pi1 control unit by the following items:

- + extended functionality of TWK temperature compensation voltage;
- + registration of battery discharge process parameters;
- + Ability to set additional criteria for load management groups (ZGO)
- + Time source with backup,
- + Number of events held in the control unit history increased to 120 000;
- + The possibility of gaining parameters in history: not only recorded alarms event, but also the value of the configured parameters after the alarm occurrence or periodically.

Due to limited space in the MOB system version of the modules that are responsible for monitoring via Ethernet, GSM / GPRS and SNMP are in form of external modules – out of the system enclosure.

| Extended functions of the control unit:

- + remote computer monitoring of the system by selected Communications medium:
 - Ethernet,
 - fixed network (telecom modem),
 - mobile network (GSM/GPRS),
 - SNMP protocol;
- + possibility of supervising up to 8 additional external signals (dry contact).